

REMARKS

Impropriety of most recent office action being a *final* office action

The Examiner's most recent office action of May 10, 2007, to which the present office action response is responsive, was improperly a *final* office action. It should have been a non-final office action. The Examiner rejected claims 4, 5, and 6 (among other claims), for instance, over Cauchi (2003/0013674) in view of Tashiro (2004/0257506). However, (1) claims 4, 5, and 6 were not amended in any previous office action response, and (2) Tashiro was first cited by the Examiner in the most recent office action, and was not cited in any previous office action.

MPEP sec. 706.07(a) states that "a second or any subsequent action on the merits in any application . . . *will not be made final* if it includes a rejection, *on newly cited art, . . . of any claim not amended by applicant . . . in spite of the fact that other claims may have been amended to require newly cited art.*" In the present situation, claims 4, 5, and 6 were not amended by Applicant, but was the nevertheless rejected over newly cited art, Tashiro. Therefore, in spite of the fact that other claims may have been amended by Applicant, such as claim 1, to require the newly cited art, the most recent office action should have been non-final, pursuant to MPEP sec. 706.07(a).

Applicant therefore submits that the proper course of action is for the Examiner to issue another office action, which may be final or non-final, because the most recent office action was improperly made final. That is, what the Examiner cannot do is simply issue an advisory action, because an advisory action cannot be issued after a non-final office action, and the most recent action should have been non-final, and not final. If the Examiner does not understand this, he or she is respectfully requested to contact his or her supervisor or Applicant's attorney so that it can be explained in more detail. Should the Examiner incorrectly issue an advisory action instead of a new office action, Applicant is prepared to discuss this situation with the Examiner's supervisor –

or indeed, the director of the relevant art unit in question – so that the correct course of action is followed.

Claims 1 and 3-10

Claim 1 is an independent claim, from which claims 3-10 ultimately depend. Claims 1 and 4-6 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi (2003/0113674) [hereinafter, “Cauchi I”] in view of Tashiro (2004/0257506). Claim 3 has been rejected under 35 USC 103(a) as being unpatentable over Cauchi I in view of Tashiro, and further in view of Cauchi (2004/010790) [hereinafter, “Cauchi II”]. Claims 7-10 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I, Tashiro, Tzu (6,007,324), Okoroanyanwu (6,589,713), and/or Cauchi II.

Applicant submits that claim 1 is patentable over Cauchi I in view of Tashiro, such that all the claims 1 and 3-10 are patentable. Applicant provides three separate and independent reasons why claim 1 is patentable over Cauchi I in view of Tashiro. First, not all claim limitations are taught, suggested, or disclosed by Cauchi I in view of Tashiro. Second, the Examiner’s stated reason to modify Cauchi I in view of Tashiro does not have a rational underpinning. Third, there is in fact no reason to modify Cauchi I in view of Tashiro to yield the claimed invention, and/or Cauchi I inherently teaches away from combination with Tashiro. Each of these reasons is now discussed in detail.

1) Cauchi I in view of Tashiro does not teach all claim limitations of claim 1

Claim 1 is limited to the second dose of radiant energy being less than the first dose of radiant energy. The Examiner has stated that part (b) of claim 1 of Cauchi I discloses that the second dose of radiation is insufficient by itself to develop the pattern,” such that it “would be reasonable to infer that this means that the second dose of radiation is less than the first dose of radiation.” (Final office action, p. 2, para. 2)

Applicant strongly submits, however, that there is no such inference in Cauchi I. That the second dose of radiation is insufficient to develop the pattern does not mean that the second dose of radiation is less than the first dose of radiation. It could just as easily mean that the second dose of radiation is greater than or equal to the first dose of radiation. The only thing that guides the Examiner in concluding that the second dose of radiation is less than the first dose of radiation is impermissible hindsight.

Consider the following example. The amount of radiation needed to develop the pattern is 4X. The first dose of radiation may be 1X and the second dose of radiation may be 3X. As such, the second dose of radiation in this example is *greater* than the first dose of radiation, but is still insufficient to develop the pattern. Consider another example, where the first dose of radiation is 2X, the second dose of radiation is 2X, and the amount of radiation needed to develop the pattern is again 4X. In this example, the second dose of radiation in this example is *equal to* the first dose of radiation, but is still insufficient to develop the pattern.

Thus, no reasonable inference can be made by just reviewing the prior art that the second dose of radiation is less than the first dose of radiation, as in the claimed invention. The only way you get to the conclusion that the second dose of radiation is less than the first dose of radiation in reviewing the prior art is if you are specifically looking for it using impermissible hindsight – i.e., if you start with your conclusion of the claimed invention, and then backtrack to try to read the prior art as teaching the claimed invention, where the prior art does not explicitly or implicitly say that the second dose is less than the first dose.

In other words, the Examiner has to weigh “what the combined teachings of the references would have suggested to one of ordinary skill in the art.” (MPEP sec 2143.01.II) Here, the combined teachings of Cauchi I and Tashiro do not speak to whether the second dose of radiation is greater than, less than, or equal to the first dose of radiation. No reasonable inference can be made that the second dose is less than the first dose, as in the claimed invention, without

impermissibly using the claimed invention as a template. The second dose could just as easily be greater than or equal to the first dose, if you do not employ impermissible hindsight.

The Examiner's usage of a "reasonable inference" in interpreting Cauchi I alone as teaching a given limitation of claim 1 indeed seems to find its analog in whether or not a limitation is "inherently" found in a given prior art reference. However, "[i]nherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." (*In re Oelrich*, 212 USPQ 323, 326 (CCPA 1981)) Here, while Cauchi I's disclosure *may* result in the claimed limitation in question, this does not rise to Cauchi I's disclosure *inherently* (i.e., as a "reasonable inference") teaching, suggesting, or disclosing this claimed limitation. That is, Cauchi I can just as easily be interpreted as teaching that the second dose is greater than or equal to the first dose using a "reasonable inference." For all of these reasons, not all the claim limitations are suggested, taught, or disclosed by Cauchi I in view of Tashiro.

2) Examiner's stated reason to modify Cauchi I in view of Tashiro has no rational underpinning

The Examiner has found all limitations of claim 1 in Cauchi I, except that Cauchi I fails to disclose the claim limitation of claim 1 of "forming the depression at the surface of the layer in the first or second portion of the layer" by baking the layer. (Final office action, p. 3, para. 2) Rather, the Examiner has stated that Tashiro discloses forming such a depression in paragraph [0206] thereof. (id.) The Examiner then states that it "would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have used the baking step to form the depression in the surface of the layer, as suggested by Tashiro, in the process of Cauchi ('674) because Tashiro teaches that baking can be used to form depressions with a specific tilt angle in a photosensitive layer." (Id.)

The Supreme Court in the recent Supreme Court decision, *KSR Int'l Co. v. Teleflex, Inc.*, 550 US _____ (2007) noted that the Examiner must provide "some articulated reasoning

with some rational underpinning to support the legal conclusion of obviousness" (KSR, at 14), such that the Examiner must "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." (Id., at 15) Applicant respectfully submits, however, that the Examiner's reasoning does not have a rational underpinning, but in effect is illogical. The Examiner's reasoning can be boiled down to this: one of ordinary skill within the art can modify the baking performed in Cauchi I to form a depression per Tashiro, because Tashiro says that you can use baking to form depressions.

However, this is not a reason that *prompts* a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does, as required by KSR. The fact that the primary reference (Cauchi I) teaches one to do an action (baking), and the fact that the secondary reference (Tashiro) says you do that action (baking) to form something (a depression) is not a *reason* for actually performing baking in Cauchi I to form a depression as in Tashiro. Indeed, this stated reasoning by the Examiner begs the question as to *why* one would want to form a depression using the baking in Cauchi I, as taught by Tashiro, in the first place. That is, the whole point of a *reason* is as the *basis* for doing something.¹

However, the fact that baking *can* or *could* be used to form a depression, as in Tashiro, is not in and of itself a *reason* why one of ordinary skill would be "prompted" to actually modify the baking of Cauchi I to so form a depression. As such, the Examiner's reasoning fails under KSR. Just because I *can* do something, does not mean that I have a *reason* to do it, in other words. The Examiner here is in effect saying "if it can be done, they will do it." However, insofar as Applicant is aware, no court has sanctioned the usage of this approach to obviousness.

¹ Consider this relatively simple example. I own a car. Someone tells me that I can use my car to drive to Mexico. However, the fact that I can use my car to drive to Mexico is not a *reason* for me to go in my car to Mexico. Likewise, the fact that baking can be used to form a depression does not mean that there is a reason to modify the process of Cauchi I to form a depression by baking, per Tashiro.

Indeed, if anything, both the MPEP and case law instruct *against* finding a reason to combine references just because they *can* be combined. “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” (MPEP sec. 2143.01.III, citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)) Here, Cauchi I *may* be able to be modified per Tashiro to yield the claimed invention. However, this fact alone is not a *reason* to actually so modify Cauchi I per Tashiro to yield obviousness under 35 USC 103(a). For all of these reasons, there is no reason to modify Cauchi I per Tashiro as stated by the Examiner to yield claim 1.

3) No reason to modify Cauchi I per Tashiro (and/or Cauchi I teaches away from combination)

As has been discussed above, the Supreme Court in KSR has instructed that there must be “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” (KSR, at 15) Applicant also notes that it is improper to combine references where the references teach away from their combination. (*In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)) This principle was in fact cited with approval by the Supreme Court in KSR. The Supreme Court in KSR discussed in some detail *United States v. Adams*, 383 U.S. 39 (1966), stating in part that in that case, “[t]he Court relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” (KSR Opinion at p. 12) Accordingly, it remains improper to combine references where the references teach away from their combination.

Therefore, let us look at the teachings of Cauchi I in detail, to see if there is any reason why one of ordinary skill within the art would want to form a depression by using the baking of Cauchi I, as taught by Tashiro. FIG. 2 of Cauchi I elucidates the clear methodology that Cauchi I teaches. Photoresist is deposited (step 15), exposed (step 20), baked (step 30), exposed again (step 40), baked again (step 50), *and developed* (step 60), before downstream processing occurs

(step 70). As is known to those of ordinary skill within the art, the development process of photolithography involves removal of the photoresist where it was exposed. Cauchi I is consistent with this, where the “wafer is then developed in step 60, *using a solvent to dissolve the exposed areas of photoresist.*” (Para. [0032])

Applicant’s argument in this respect is simply stated as thus: there is no reason to form a depression in the *exposed* portion of the photoresist in Cauchi I, per Tashiro, where the exposed photoresist is going to be immediately removed anyway! That is, in the claimed invention, you perform two exposures and then form the depression within the exposed photoresist by baking. In Cauchi I, you expose, bake, expose again, bake again – and then immediately remove the exposed photoresist, via development. So, the question is this: why would you want to modify this process of Cauchi I, per Tashiro, to form a depression in the exposed portion of the photoresist (as in the claimed invention), when you are just going to immediately dissolve and remove this exposed portion anyway?

Applicant thus submits that there is no reason to prompt one of ordinary skill within the art to modify Cauchi I per Tashiro to yield the invention of claim 1 in this respect. To wit, one of ordinary skill within the art could “care less” about forming a depression within the exposed photoresist of Cauchi I, per Tashiro, because that exposed photoresist is going to be immediately removed any way. Stated another way, one of ordinary skill would not want to go through the trouble of modifying the process of Cauchi I to form a depression per Tashiro, because the depression would be immediately washed away anyway.

Indeed, the logical conclusion of Cauchi I is that if you are going to expose, bake, expose again, bake again – and then remove the exposed portion of photoresist by developing – then there is absolutely *no reason* to go to the trouble to form a depression within the exposed portion during the baking, per Tashiro and as in the claimed invention, such that Cauchi I effectively *teaches away* from combination with Tashiro. That is, if the process is such that the exposed portion of photoresist is going to be immediately removed after baking anyway, then this in effect

teaches away from going to the trouble of forming a depression within this exposed portion in the first place. For all of these reasons, there is no reason to modify Cauchi I per Tashiro to yield claim 1.

Claims 11-30

Claim 11 is an independent claim, from which claims 12-30 ultimately depend. Claims 11-12, 16, 21-26, and 29-30 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I in view of Tashiro, and further in view of Tzu. Claims 13-15 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I in view of Tashiro and Tzu, and further in view of Okoroanyanwu. Claims 27 and 28 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I in view of Tashiro and Tzu, and further in view of Cauchi II. Claims 17-20 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I, Tashiro, Tzu, Okoroanyanwu, and/or Cauchi II.

Claim 11 is limited similarly to claim 1, in the respect that claim 11 recites forming a depression by baking. Therefore, Applicant submits that claim 11 is patentable over the cited prior art, for at least the same reasons that claim 1 is patentable, as has been discussed above. Claims 12-30 are patentable at least because they depend from a patentable base independent claim.

Claims 31-52

Claim 31 is an independent claim, from which claims 32-52 ultimately depend. Claims 31-36, 41-48, and 52 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I in view of Tashiro, Tzu, Okoroanyanwu, and/or Cauchi II, and further in view of Makigaki (6,863,375). Claims 37-40 and 49-51 have been rejected under 35 USC 103(a) as being unpatentable over Cauchi I, Tashiro, Tzu, Okoroanyanwu, and/or Cauchi II.

Claim 31 is limited similarly to claim 1, in the respect that claim 31 recites forming a depression by baking. Therefore, Applicant submits that claim 31 is patentable over the cited prior art, for at least the same reasons that claim 1 is patentable, as has been discussed above. Claims 32-52 are patentable at least because they depend from a patentable base independent claim.

Conclusion

Applicants have made a diligent effort to place the pending claims in condition for allowance, and request that they so be allowed. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Mike Dryja, Applicant's representative, at 425-427-5094, so that such issues may be resolved as expeditiously as possible. For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



July 8, 2007
Date

Michael A. Dryja, Reg. No. 39,662
Attorney/Agent for Applicant(s)

Law Offices of Michael Dryja
1474 N Cooper Rd #105-248
Gilbert, AZ 85233
tel: 425-427-5094, fax: 206-374-2819